1. Determine the domain of the function below.

$$f(x) = \frac{6}{24x^2 + 6x - 9}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [-2, 0.2]$ and $b \in [-0.3, 2.5]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [-12.4, -11.6]$ and $b \in [17.4, 19.7]$

C. All Real numbers.

D. All Real numbers except $x = a$, where $a \in [-2, 0.2]$

E. All Real numbers except $x = a$, where $a \in [-12.4, -11.6]$

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2. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5}{-3x - 7} + 5 = \frac{6}{9x + 21}$$

A. $x \in [2.63, 2.81]$

B. $x_1 \in [-2.06, -1.55]$ and $x_2 \in [1.8, 3.8]$

C. $x \in [-1.87, -0.87]$

D. $x_1 \in [-2.46, -1.99]$ and $x_2 \in [-1.87, 0.13]$

E. All solutions lead to invalid or complex values in the equation.

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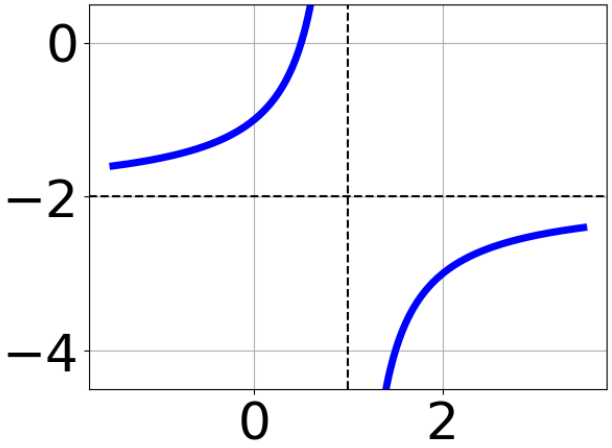
3. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{(x-1)^2} + 4$

B. $f(x) = \dfrac{1}{x-1} + 4$

C. $f(x) = \dfrac{-1}{(x+1)^2} + 4$

D. $f(x) = \dfrac{-1}{x+1} + 4$

E. None of the above

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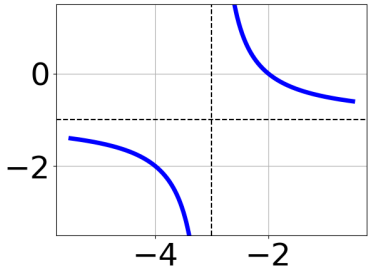
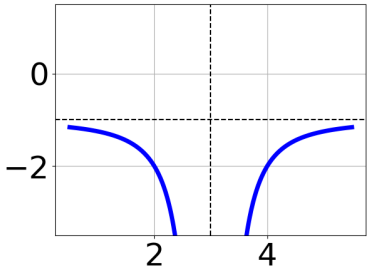
4. Choose the graph of the equation below.

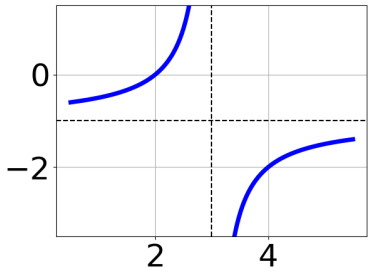
$$f(x) = \frac{1}{x+3} - 1$$

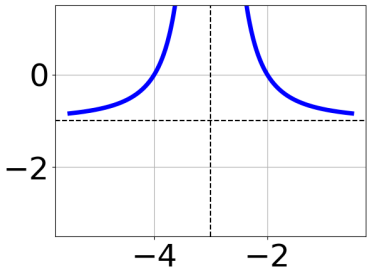
A.



B.



C. 

D. 

E. None of the above.

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5. Determine the domain of the function below.

$$f(x) = \frac{3}{12x^2 - 36x + 24}$$

A. All Real numbers except $x = a$ and $x = b$, where $a \in [14.7, 16.9]$ and $b \in [17, 18.2]$

B. All Real numbers except $x = a$, where $a \in [-1.1, 1.7]$

C. All Real numbers except $x = a$, where $a \in [14.7, 16.9]$

D. All Real numbers except $x = a$ and $x = b$, where $a \in [-1.1, 1.7]$ and $b \in [1.7, 2.9]$

E. All Real numbers.

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6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{3}{5x + 4} + -7 = \frac{2}{-20x - 16}$$

A. $x \in [0.87, 0.94]$

B. $x \in [-1.7, 1.3]$

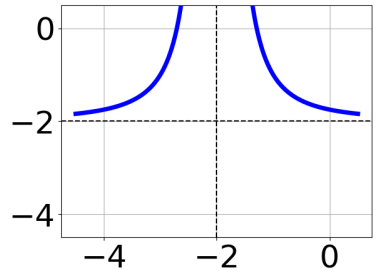
C. All solutions lead to invalid or complex values in the equation.

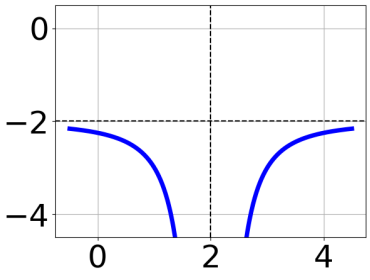
D. $x_1 \in [-0.7, -0.69]$ and $x_2 \in [0.9, 5.9]$

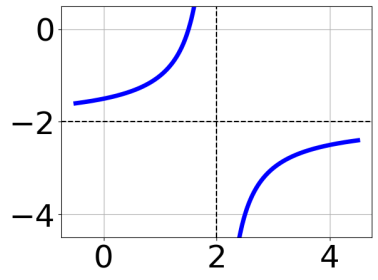
E. $x_1 \in [-0.79, -0.72]$ and $x_2 \in [-0.7, 0.3]$

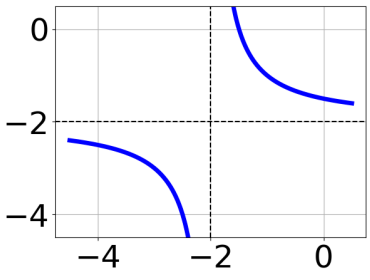
7. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x-2} - 2$$

A. 

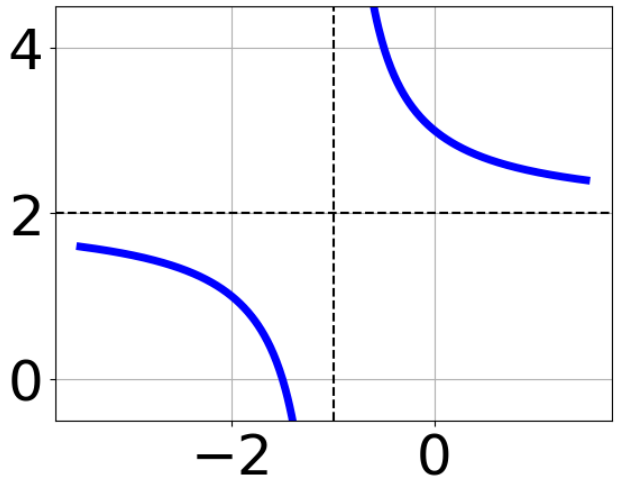
C. 

B. 

D. 

E. None of the above.

8. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{-1}{(x-1)^2} + 2$

B. $f(x) = \dfrac{-1}{x-1} + 2$

C. $f(x) = \dfrac{1}{x+1} + 2$

D. $f(x) = \dfrac{1}{(x+1)^2} + 2$

E. None of the above

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9. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{5x}{3x+5} + \frac{-2x^2}{18x^2+39x+15} = \frac{-6}{6x+3}$$

A. $x_1 \in [-2.39, -1.64]$ and $x_2 \in [-0.56, -0.38]$

B. $x \in [-2.39, -1.64]$

C. $x_1 \in [-1.48, -0.61]$ and $x_2 \in [-0.17, 1.79]$

D. All solutions lead to invalid or complex values in the equation.

E. $x \in [-0.75, -0.03]$

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10. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-5x}{2x-6} + \frac{-6x^2}{14x^2-28x-42} = \frac{2}{7x+7}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x_1 \in [0.16, 0.32]$ and $x_2 \in [2, 6]$

C. $x \in [-1.05, -0.78]$

D. $x_1 \in [0.16, 0.32]$ and $x_2 \in [-6.2, 2.8]$

E. $x \in [-1.23, -1.17]$
